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I am delighted to be here today at the Wisconsin Institute of World Affairs, and I'm especially pleased to address one of the critical crises of our time, global climate change. As we search for answers, there is no better place than a university campus to spark the solutions to the global warming problem. My goal today is to help trigger some new ideas by sharing with you the incredible efforts springing to life in California and all around this great country.

As you might imagine, this discussion begins and ends with Mother Earth. She's not the paradise she was before humans and the industrial age began leaving an indelible carbon footprint. Pollution from automobiles, industrial smoke, and other greenhouse gas creating activities has our planet running a fever. The earth today is more than one full degree warmer on average than it was in 1900, a change now attributed to man-made causes. Worse yet, experts say the globe is heating up at triple the pace it was in 1970, and unless we change our ways now, we will very soon inhabit a planet that is 3 to 8 degrees warmer. This change will wreak havoc on our ecological system, accelerating the melting of our polar icecaps, raising sea levels, and bringing significant shifts in our weather patterns. The time for action is now.

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balance of our ecosystems. We have a moral obligation to future generations to stop global warming. But just as importantly, we have an obligation to provide for our security at the state and national level, a task that we cannot accomplish with our current dependency upon carbon-based fuels.

America, as much or more than any other country, depends upon oil to fuel our way of life. Our cars, our heating and cooling systems, and many of our industrial manufacturing systems are all heavily dependent upon the availability of oil. Even our nation's defense systems are predicated on the availability of oil. But what would happen if America lost access to a ready supply of oil? Simply put, our security as a nation would disappear.

Because we now draw much of our oil supply from the most risky and terrorist-ridden places on earth – Iraq, Saudi Arabia, Venezuela, and Nigeria - we are at the mercy of the whims of dictators and despots. Even our supplies along the Gulf Coast are precarious, as Hurricane Katrina showed us last year. The decisions made by dictators and the effects of nature determine how much we pay for gasoline, how difficult it is to heat and cool our homes, and how vibrant our economy can be. Considering this predicament, how can our future be secure? How can we truly be a safe country if our economy and social fabric are dependent upon the stability of a place as volatile as the Middle East?

We must change this predicament, and we must do it now. The ongoing war in Iraq has created even more instability in a region that has rarely been stable. Existing and new conflicts will disrupt the flow of oil from those places and could plunge us back into the days of paralyzing fuel rationing. America did not learn its lesson during the early 1970s when the OPEC nations stopped exports of oil to the United States and other western countries. Today, because we have refused to wean ourselves from dependence on fossil fuels, those same nations still have us literally over a barrel. We owe ourselves, and our children, a better world.

If a political leader is unable to accept the climate crisis as sufficient reason for terminating our addiction to oil, then concern for our military and economic security should suffice. A mountain of evidence is already there, and more will come on February 2nd when the Intergovernmental Panel on Climate Change releases the first segment of its 1,600-page report on global warming. And, at long last, President Bush, during his recent State of the Union address, acknowledged that man's actions are affecting the climate of the earth. No one, at this point, should be burying their head in the sand on global warming. Everyone should be demanding that our government and our leaders take strong, quick, decisive action.

With the recent anniversary of the birth of Dr. Martin Luther King Jr., I was reminded of one of his most important, but lesser known speeches. In 1967, during the height of the Vietnam War, he boldly broke with convention and issued a call for the end of American involvement in Vietnam. It wasn't a popular move, even for supporters of his civil rights efforts. He was heavily criticized for speaking out of turn, and his critics were given potent ammunition to brand him a traitor. But this didn't deter Dr. King, whose reasoning for speaking out was simple, yet eloquent: "A time comes when silence is betrayal."

Today, in America, and throughout the world, that time has come again. It is time for world leaders to stop sitting silently and make a strong, lasting commitment to protect our environment, reduce the use of carbon-based fuels, and lead with actions, not just words. It's not an easy task. I have been working on this issue for most of the 32 years I've served the public, beginning with my 1978 authorship of the first tax credit law for conservation, solar and wind energy systems in California. My home state, often serves as a bellwether for the rest of the nation, whether in politics, innovation, or cultural change. Unfortunately, we are also a leader in causing ecological damage to our environment, ranking as the world's ninth largest greenhouse gas emitter (12 tons annually per capita) and ranking second only to the US in consumption of gasoline – 16 billion gallons in 2005 alone. What impact is this having on the California environment? Consider the following from the California Climate Change Center Report of 2006:

Californians endure the worst air quality in the US. More than 90 percent of the population lives in areas that violate the state's own air quality standards.

Ozone and particulate matter contribute to some 8,800 deaths and \$71 billion in additional health care costs annually. One in six children in California's most polluted areas suffers from asthma.

And here's what's in store for our Golden State should we continue on our current carbon-emitting consumption path:

Rising temperatures and greenhouse gas levels will shrink our annual mountain snow pack.

This will have devastating consequences as the Sierra Nevada Mountains snow pack is the primary source of California's water supply.

Rising sea levels and the inland flow of seawater from climate change could damage our coastline and threaten the quality and reliability of many of California's fresh water supplies

Rising temperatures are likely to worsen the quality and quantity of production for a number of agricultural segments. Among those that are likely to be hard hit are the critical industries of wine grape production, other fruits, and the dairy industry.

The risk of large wildfires in California could increase by 55 percent if global warming continues unabated.

Those are sobering predictions of an impending "Inconvenient Truth." Just imagine for a moment if we had heeded the words of former President Jimmy Carter, who in the late 1970s issued a wake-up cry to a nation spiraling downward into a full-fledged fossil fuel addiction. President Carter created the Energy Department as a Cabinet-level position, he urged conservation, and he even set tough fuel mileage standards for automakers. Unfortunately, much of what he proposed was undone by lower oil prices and the actions of the Reagan Administration, and we again found ourselves beholden to the whims of those who control the world's oil supplies.

Today despite all of the evidence of a looming climate catastrophe, we are still not putting our money where our mouth is when it comes to global warming. Research and development (R&D) in energy technologies by both government and industry is not growing, but declining. Annual US spending on energy R&D is less than half of what it was 25 years ago. Over the same time period federal spending on medical research has increased four-fold to \$28 billion. Military research has grown 260 percent over the same time period, totaling more than \$75 billion a year – more than 20 times the amount spent on energy research. Meanwhile, electricity companies on average invest less than 0.1% of gross revenues on R&D – less than the dog food industry invests in R&D on its products. President Bush proposed a 22% increase in Department of Energy research in his most recent State of the Union address, but this is a mere

drop in the bucket of what is needed to make a difference. Do we have our national and global security priorities straight? I think not.

To achieve success, we must develop a coherent national energy policy that commits to large, long-term investment in clean-burning energy sources and eliminates perverse incentives that foster more consumption and investment in fossil fuel research and development. The overwhelming majority of government and private investment in energy still goes to improving technology for dirty fossil fuels. The emphasis should be on improved battery technology, hydrogen fuel cells, and enhanced solar and wind technology. The 2005 Energy Act was the first major energy legislation in a decade, but \$12 billion went toward research for fossil fuels while a mere \$7.7 billion was divided among a wide array of renewable energy sources. Royal Dutch Shell has invested \$1 billion over the past five years on clean energy technologies, one of the largest investments of any company. But this is one-fifth of what it invested jointly with Chevron on a single giant oil sand mining project in Canada.

So, I've laid out the gloom and doom scenarios. Now it's time for some answers. What, as individuals, as local and state entities, and as a nation can we do? How can we reverse our nation's addiction to destructive carbon fuels – an addiction that rivals that of a smoker on nicotine? Here's some of what's being done today that might help us break the habit.

I will start in California, where we have long been a leader in the global movement toward environmentally friendly fuel systems, reduced carbon emissions, and the development of markets for renewable energy sources. There is definitely encouraging news on the horizon. Our Governor has significantly upped the ante recently by signing and proposing bold new initiatives to reduce carbon emissions. It begins with AB 32, known as the Global Warming Act of 2006, authored by the California Speaker of the Assembly, Fabian Nunez. The bill is an ambitious plan that primarily seeks to reduce greenhouse gas emissions in the state by 25% before 2020. AB 32 aims to establish a statewide limit on greenhouse gas emissions by January 2008. It will adopt regulations by the start of 2008 requiring greenhouse gas emission sources to monitor and report their emissions to the state. By July of this year, the state will adopt a list of discrete early actions it can take to reduce carbon emissions prior to the implementation of a market-based compliance system and enforce these measures by January 2010. And as of January 2009, California will have a comprehensive scoping plan on how it will reduce carbon emissions and specifically target where these emission reductions will come from.

As part of this broader goal, the Governor signed an Executive Order a few weeks ago aimed at establishing the nation's first low-carbon fuel standards to reduce the carbon intensity of California's transportation fuels by at least 10 percent by 2020. This builds upon regulations

already in effect since 2004 that will limit greenhouse gas emissions beginning with 2009 model year vehicles and light trucks.

On January 25, the California Public Utilities Commission, which regulates the state's three largest utilities, approved rules that will take effect in February banning the state's power companies from purchasing electricity from high-polluting sources, namely coal-burning plants outside of California.

But California is not just cracking down on greenhouse gas polluters. We are simultaneously investing in the future green technologies that will allow our economy to continue to grow in a responsible manner. Initiated in 2004, the California Hydrogen Highway Network is an effort by the state to support the establishment of a hydrogen fuel cell infrastructure in California. Called 'Vision 2010,' it has the goal of ensuring that by decade's end every Californian will have access to a hydrogen fuel station along California's major highways. The projected 150 to 200 hydrogen fueling stations throughout California will have an initial startup cost of \$75 million to \$200 million, most of which will come from the private sector. The public sector's role is to provide incentives, loan guarantees, revenue bond funding, education and training.

Another promising proposal is the Governor's Biomass Executive Order, which he signed in April 2006. It sets goals for the production and use of biofuels and biomass for electricity in California. Biomass is a renewable energy source that currently only supplies 2% of the state's electricity output. The state must produce a minimum of 20% of its biofuels within California by 2010; 40% by 2020; and 75% by 2050. This Executive Order led to the creation of the Bioenergy Interagency Working Group to implement the established goals. This group produced the Bioenergy Action Plan in July 2006. Currently, the state consumes 900 million gallons of ethanol annually, yet it produces less than 5% of the ethanol it consumes.

Another bill (AB 1811) signed by the Governor last June, allocates \$25 million in funds to be used to incentivize the use of alternative fuels. This includes (1) market-based incentives for high mileage vehicles in California; (2) production incentives for alternative fuel production in California; (3) incentives for construction of alternative fuel refueling stations; (4) funding for R&D on alternative fuels and vehicles; and (5) incentives to replace the current state transportation fleet with cleaner-burning, high mileage, alternative fuel vehicles.

Recognizing that global warming is a truly "global" issue, California has forged strong partnerships to find solutions. In early March, California is hosting an international symposium on climate change. In July of last year Governor Schwarzenegger and British Prime Minister Tony Blair signed an agreement called the California-UK Climate Change Agreement. It is a partnership agreement to collaborate on aggressively acting to address climate change and

promote the development of clean energy and energy diversity. The Agreement commits California and the UK to share information on best practices for implementing market-based solutions, collaborate on technological research to develop alternative energies, and strengthen linkages between the respective scientific communities.

California has also recently passed legislation that expands the California Solar Initiative, including requiring all homebuilders in California to offer photovoltaic (PV) solar panels as a standard option by 2011 (SB 1 (Murray) – 2006) and another bill that requires recommendations to advance carbon sequestration technology (AB 1925 (Blakeslee) – 2006). That's just some of what's happening in California, and its good important work.

As I mentioned earlier, even the President has begun to address the issue of global warming. Many have pushed him to act more quickly and aggressively, including big business.

On January 19, ten major US companies joined with four leading environmental groups to lay out a set of principles aimed at establishing a firm nationwide limit on greenhouse gas emissions and reducing emissions by 10% to 30% over the next 15 years. The group, known as the US Climate Action Partnership, includes such heavy hitters as General Electric, Caterpillar, Alcoa, DuPont, and Lehman Brothers, in addition to large energy companies like BP, Duke Energy, and PG&E, as well as leading environmental groups such as the World Resources Institute, the Natural Resource Defense Fund, the Pew Center on Global Climate Change, and Environmental Defense.

The climate for climate change legislation is warming...and that's a good thing. If the heart of Corporate America and the nation's environmental leaders can find common ground, I think the stage is set for our national political leadership to make significant progress on this pressing issue this year.

Californians are also leading the climate change charge in Washington D.C. New House Speaker Nancy Pelosi is establishing a new special committee aimed at developing and passing climate change legislation, and both California Senators have already proposed aggressive climate change legislation at the start of the 2007 session. Senator Dianne Feinstein has a bill that targets carbon dioxide emissions of energy companies and supports a 'cap and trade' system for meeting goals. Senator Barbara Boxer chairs the Senate Environment and Public Works Committee, which will hear all global warming bills. She is also co-sponsoring a bill that seeks to cut greenhouse gas emission levels to 80% of 1990 levels by 2050.

For every action, there is a consequence. As responsible stewards of this dynamic planet, we have the moral obligation to understand those consequences. That gives us a choice: to continue ignoring the consequences of our actions, or to acknowledge those consequences, change our behavior and make a stand. The answer is obvious. As Dr. King said, “a time comes when silence is betrayal.” That time is now. Make your voice heard.

- Lt. Governor Garamendi